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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,825	12/19/2001	Milton Lee Buschbom	TI-31857	8453

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EXAMINER

VU, QUANG D

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,825

Applicant(s)

BUSCHBOM, MILTON LEE

Examiner

Quang D Vu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 29-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 9-12, 18, 20, 21, 29-30 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,538,319 to Terui.

Terui (figures 1-3C) teaches a substrate for an unpackaged integrated circuit chip having surface mount contacts disposed thereon in a pattern, comprising:

an insulating material (1); and

a conductive material disposed over the insulating material (1), the conductive material comprising a plurality of contacts (2) arranged in a pattern corresponding to the integrated circuit (12) contact pattern (13), the conductive material comprising a conductive ring (4) disposed around the periphery of the contact pattern (2), wherein the substrate contacts (7) are coupleable to the integrated circuit chip (12) surface mount contacts (13) (column 2, line 12 – column 3, line 12).

Regarding claim 2, Terui teaches the conductive material comprises at least one conductive trace (7) disposed proximate at least one contact.

Regarding claim 3, Terui teaches at least one conductive trace (7) is coupled to the conductive material ring (4).

Regarding claim 4, Terui teaches the substrate contacts (7) comprise wire bond pads (3), wherein the wire bond pads (3) are coupleable to the integrated circuit chip (12) surface mount contacts (13).

Regarding claim 6, Terui teaches the insulating material (1) includes a plurality of apertures (5) disposed in the integrated circuit contact pattern (2).

Regarding claim 7, Terui teaches the conductive material comprises Cu (column 2, lines 25-29).

Regarding claim 20, Terui teaches the integrated circuit comprises a ball grid array.

Regarding claim 21, Glenn teaches an integrated circuit packaged in the package.

Regarding claim 30, Terui teaches a trace (substrate contact [7]) formed of the conductive material over the insulating material (1) and connected to the conductive ring (4) such that the trace (substrate contact [7]) surrounds are selected one of the plurality of contacts (2) (figure 2B-C).

Regarding claim 31, Terui teaches a trace (substrate contact [7]) formed of the conductive material over the insulating material (1) and connected to the conductive ring (4) such that the trace (substrate contact [7]) surrounds are selected contacts (2) in the plurality of contacts (2) (figure 2B-C).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,538,319 to Terui in view of US Patent No. 6,075,710 to Lau.

Regarding claim 5, Terui differs from the claimed invention by not showing the insulating material comprises polyimide. However, Lau teaches the substrate comprises polyimide (210) (figure 6; column 7, lines 37-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Lau into the device taught by Terui because the polyimide is a resin material for adhesion.

Regarding claim 17, Terui teaches the conductive material comprises Cu (column 2, lines 25-29). Terui differs from the claimed invention by not showing the insulating material comprises polyimide. However, Lau teaches the substrate comprises polyimide (210) (figure 6; column 7, lines 37-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Lau into the device taught by Terui, since the polyimide is a resin material for adhesion.

5. Claims 8, 13-16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,538,319 to Terui in view of US Patent No. 6,150,193 to Glenn.

Art Unit: 2811

Regarding claim 8, Terui differs from the claimed invention by not showing the conductive material is formed by electro-less plating. However, Glenn teaches the conductive material is formed by electro-less plating (column 4, lines 46-50). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Glenn into the device taught by Terui because the electro-less plating is a conventional process for forming conductive layer.

Regarding claim 13, Terui differs from the claimed invention by not showing an encapsulating insulating material disposed over the integrated circuit and substrate. However, Glenn (figure 5) teaches an encapsulating insulating material (208) disposed over the integrated circuit and substrate. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Glenn into the device taught by Terui because it protects the device from damage. The combined device shows an encapsulating insulating material disposed over the integrated circuit and substrate.

Regarding claim 14, Terui differs from the claimed invention by not showing a shielding material disposed over the encapsulating insulating material, the shielding material being electrically coupled to the conductive material solid ring. However, Glenn (figure 5) teaches a shielding material (210) disposed over the encapsulating insulating material (208) (column 7, lines 1-13). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Glenn into the device taught by Terui because it protects the device from damage. The combined device shows a shielding material disposed over the encapsulating insulating material, the shielding material being electrically coupled to the conductive material solid ring.

Art Unit: 2811

Regarding claim 15, the combined device shows the shielding material (210) comprises an electrically conductive material (column 7, lines 9-10).

Regarding claim 16, the combined device (Terui and Glenn) differs from the claimed invention by not showing the shielding material comprises a dissipative material having less than about 1 M ampere resistance. It would have been obvious to one having ordinary skill in the art at the time the invention was made for the shielding material comprises a dissipative material having less than about 1 M ampere resistance, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 19, Terui differs from the claimed invention by not showing the conductive material is formed by electro-less plating. However, Glenn teaches the conductive material is formed by electro-less plating (column 4, lines 46-50). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Glenn into the device taught by Terui because the electro-less plating is a conventional process for forming conductive layer.

Response to Arguments

6. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2811


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 703-305-3826. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

qv
July 26, 2003


SHOUXIANG HU
PRIMARY EXAMINER